

# User's Manual

# DATABAR DBR 100

# Bar Code Scanner

This low-cost, technologically-advanced bar code scanner is setting new industry standards for affordability and ease-of-use. The battery-operated unit is ideal for any light-duty scanning application, portable or stationary. It's compatible with most RS232C-interfaced computers, and can decode the six most popular bar codes (Model 130), or the twelve most popular (Model 140).

In single quantities, the DBR 100 comes standard with popular Default Operating Modes (see Technical Specifications, page 6). For quantity orders, custom Default Operating Modes can be specified. In both cases, the included Option Control Card lets you temporarily set different operating modes — and emulate a keypad — by scanning short lines of bar code on the card. Two Option Control Cards are packed with each DBR 100, and the card is reprinted on page 4 of this manual.

The Databar DBR 100 will meet your light-duty needs. For heavy-duty applications, or special scanning tasks, contact your Databar representative about the DBR 800 Series of stationary scanners; the DBR 900 Series of guided, non-wand scanners; and the DBR 1000 Series of modular components for configuring powerful stationary and portable scanners. For questions about your DBR 100, or other Databar Scanners, call Customer Service at 1-800-672-2776.

## *To Get Started Quickly . . .*

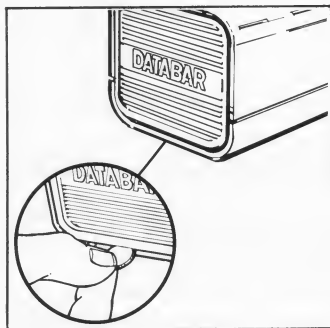
*Read Page 2 and the Use and Care Reminders, Page 6*

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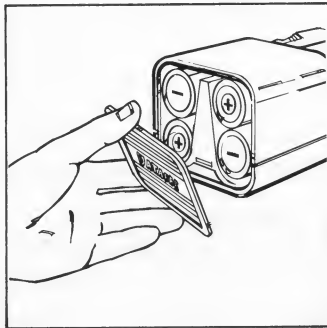
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### Installing Batteries in the DBR 100 . . .

Use four D-Cell batteries. We recommend long-life alkaline-type batteries. **Do Not Use Rechargeable Nickel-Cadmium Batteries.**



**A.)** Remove battery cover by inserting a coin between the DATABAR battery cover and the bottom center of the silver case.



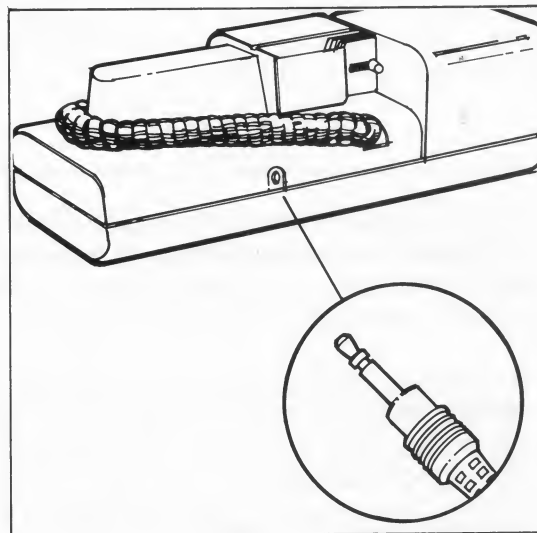
**B.)** Insert batteries according to label on inside of battery cover. Replace cover starting from the top. Securely seat cover tab in groove on bottom of case.

### Connecting the DBR 100 to your computer . . .

- Turn off the power to your computer and other peripherals.

- Insert the cable's pin in the output jack on the side of the DBR 100 (See Illustration).
- Insert the cable's DB25-Pin Connector to the RS232C port on your computer or interface.
- Turn on power to your computer and peripherals and load your application software according to the manufacturers' instructions.

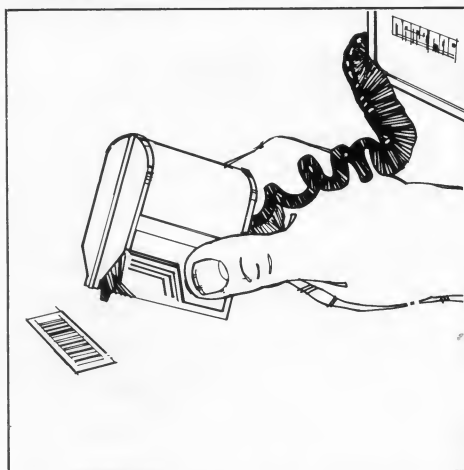
C.)



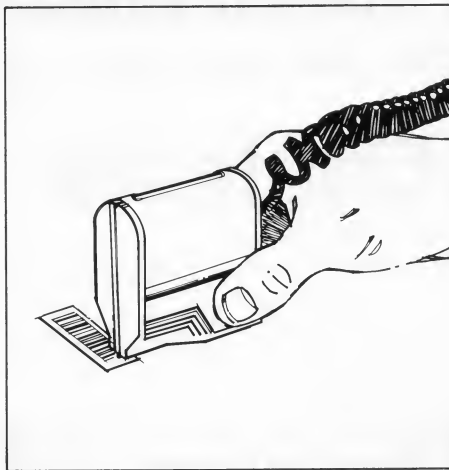
### Replacing the wand after use . . .

Note the wand's proper resting position above. The wand tip points toward the coiled cord plug. The coiled cord wraps around the center post.

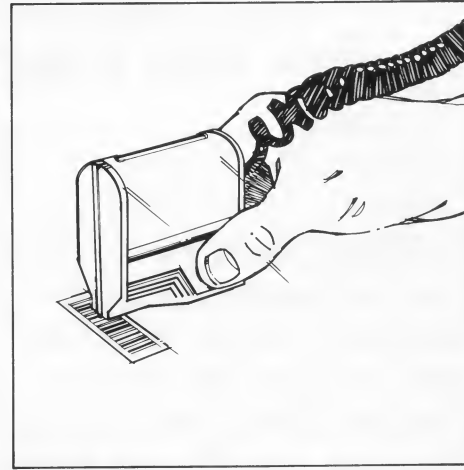
### How to scan bar codes with the DBR 100 . . .



**1.)** Lift the wand from its cradle and grasp it with the thumb and forefinger as shown. Let the cord run through your palm or over your hand as shown. Important: The cord should extend out from the jack side (Illustration C.) of the DBR 100 and should not be pulled through the center.



**2.)** To scan a bar code in either direction, place the wand's grooved base flat on (or parallel to) the surface with the wand tip lightly touching the white area just to the left or



right of the bar code as shown.

**3.)** Slide the wand smoothly and lightly completely across the bar code, maintaining steady contact of the surface with the wand tip without downward pressure. Don't scan too slowly or quickly (try different speeds) and keep the tip from sliding off the top or bottom of the bar code. Listen for a single high-pitched beep (successful scan). If you hear a buzz — the Error Tone — try again. (Cont. on Page 3.)

## Scanning bar codes . . .

The DBR 100 automatically powers on when you remove the box-shaped wand from its cradle, and powers off when you return the wand. During operation, take care not to stretch the wand's cable over the power switch in the wand's cradle, or otherwise touch the power switch, or the unit may power off. However, if the unit powers off, you simply press the power switch and release to restore power. **Note: For maximum battery life, always return the wand to its cradle immediately after finishing a data collection task.**

### In case of difficulty . . .

If you get repeated Error Tones while scanning a bar code, possible causes include:

- **Poor Scanning Motion.** Make sure you hold the wand so the grooved base is flat on, or parallel to, the surface. Start the wand tip in the white area to the left or right of the bar code; steadily contact the surface with the tip, and slide the tip completely across the bar code. Your hand motion should be light and smooth. Try different scanning speeds to find the most effective one; most new users scan too slowly.
- **Dirty Wand Tip.** Ink, varnish, dirt, etc. can collect on the wand tip after extensive use. To clean the tip, gently swab it with alcohol applied with a lint-free cloth or cotton swab. Let the tip dry before using the scanner.
- **Poor Bar Code.** Examine the bar code you are trying to scan. If there are scratches, wrinkles, dirt, etc. on the bar code, try carefully guiding the wand tip around such things while scanning. Also, avoid running the wand tip over text, ink, dirt, label edges, etc. before the tip contacts the bar code.

- **Undecodeable Bar Code.** The DBR 100 will not decode bar codes that have bars narrower than .0075 inch. Also, if the bar code is not one of the six decoded by the Model 130, or the twelve decoded by the Model 140, continued Error Tones will sound.

### Other possible difficulties during operation . . .

- **Power-up light and tone don't occur.** Try pressing the power switch and releasing. Make sure the tab at the bottom of the battery cover is securely seated in the groove on the scanner's base. Make sure the modular phone jack plug on the wand's coiled cord is securely seated in the scanner. If these checks are unsuccessful, check for proper battery placement and low batteries.
- **Short battery life.** Always return the wand to its cradle after use. The proper wand resting position is with the wand tip pointing toward the coiled cord plug, and the wand's two guide bumps aligned with the scanner's grooves on the battery compartment and the center cord-holding post. (See Illustration C, Page 2).
- **Unwanted power-off.** Do not pull the wand's coiled cord over the power switch or touch the switch during operation. And do not jar the DBR 100 or drop it. It is designed for light-duty tasks and must be treated the same way you would handle your computer.
- **Failure to transmit to host computer.** Check that the connecting cord's pin is securely seated in the DBR 100, and that the DB25-Pin Connector is securely seated in the RS232C port. Check that the scanner's Default Modes or the special modes you set with the Option Control Card (see page 4) are proper for your computer and applications software.

## Communications with your computer/terminal . . .

If you've specified your computer when ordering your DBR 100, the included cable (and possibly an adaptor) generally will simply connect to your computer, and the DBR 100 will transmit data into the proper applications programs without difficulty. However, if you have difficulty, you or the suppliers of your computer and software should compare the following information on the 100's cable and adaptors with your system's requirements for compatibility. If nothing is wrong, next you should read the sections on these Default Modes: Baud Rate, Parity, Data Bits, Delay (page 5). You may need to reset one or more of these modes for your application.

### Cable Adaptors . . .

There are two optional adaptors available from your Databar salesperson for the plug on the included RS-232-C cable.

The "Gender" Adaptor changes the plug from male to female. This adaptor is required for IBM Personal Computers and its compatibles. The Pin 2/3 Crossover Adaptor is required when your host computer/terminal uses Pin 3 for transmit. This adaptor changes the 100's transmit pin from 3 to 2.

### RS-232-C Configuration . . .

The RS-232 port on the DBR 100 is set up as a DTE peripheral device. There is no receive function and handshaking is not supported. The handshake lines have been defeated in the cable supplied with your system. The connections selected (shown at right) will defeat handshaking on most systems. If your system requires different connections, other cables are available.

## RS-232-C Standard cable connections . . .

Pin	Function
1	GND
7	
3	TRANSMIT FROM DBR 100
4	RTS/CTS
5	
6	DSR/DTR/DCD
8	
20	

Note: Even though the DBR 100 does not support handshaking, communication still is possible in systems which do not use xon/xoff, enq/ack, or ack/nak handshaking.

If you do encounter the loss of characters during transmission because of lack of handshaking, check the section on the Delay Mode (page 5).

### Number of stop bits . . .

The number of stop bits can be 1 or 2. Standard with the DBR 100 is two stop bits. However, the DBR 100 always works whether or not the host is set for 1 or 2 stop bits.

Call Databar Customer Service at 1-800-672-2776 for help with any communications problems you cannot solve.

## Default Operating Modes . . .

Unless you have a specially-ordered quantity of DBR 100 scanners with specified operating modes, your DBR 100 operates with the following Default Modes when the unit powers on:

- Non-Buffer Mode
- 1200 Baud Rate
- No Delay
- No Parity
- Termination Character: Carriage Return
- 8 Data Bits
- No Checksum (Model 140)

To change any of these Default Modes or the special Default Modes on your scanner, you must scan bar codes on the included Option Control Card *each time* the unit is powered on. This card includes two types of bar code "keys": single function keys in rows two and three, and multi-function keys with keypad emulation capability in rows 4-7. The single-function keys simply perform their function when scanned. The multi-function keys operate as numeric keypad keys each time the unit powers on, and after each resetting of an operating mode.

## How to Use the Option Control Card . . .

● **Resetting Operating Modes.** To set the operating modes listed at the top and bottom of each key, first scan the **TOP** or the **BOTTOM** location keys in Row Seven and then one desired function key. To set a second function, etc., you again must scan one of the location keys before scanning the function key.

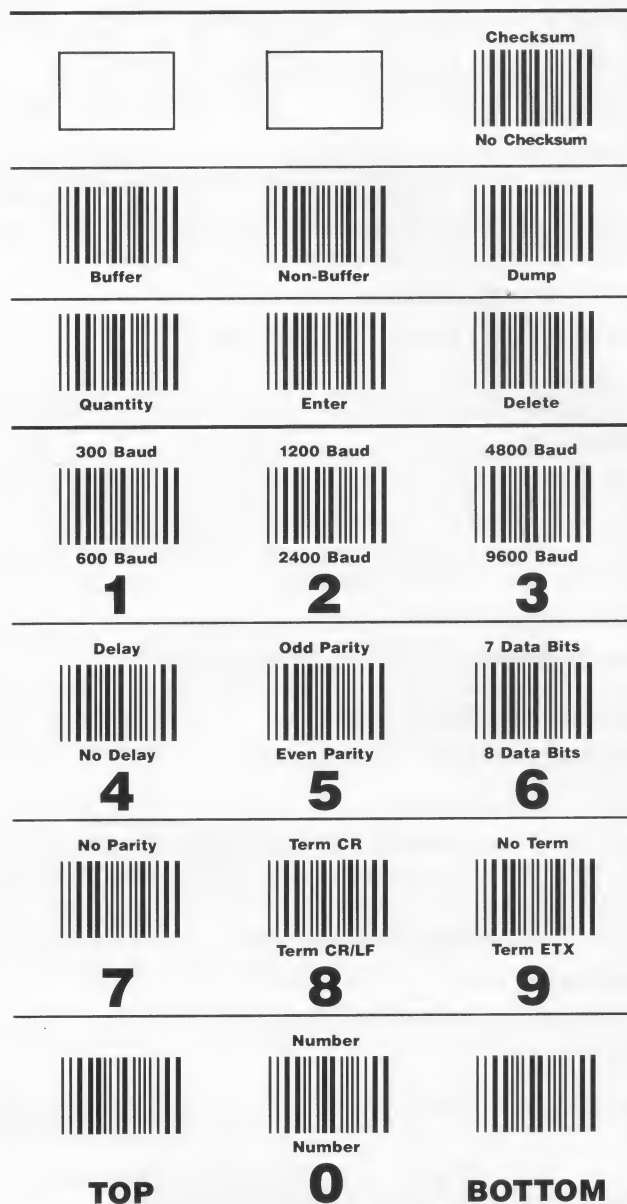
● **Cancelling a Location Key Scan.** If you scan a location key by mistake, and wish to return the multi-function keys to the numeric keypad mode, simply scan the 0 key.

● **Returning to Default Modes.** If you want to return to all Default Modes and do not have decoded data stored in the DBR 100's memory, simply push the power button to power off the unit, and release to power on again. If you want to return to only some Default Modes or have stored data in memory, scan the proper location and function keys.

## Resetting Operating Modes with the Option Control Card . . .

Here is an explanation of the use of all keys and functions on the Option Control Card, starting with Row 1 and going down the card. However, no set sequence of scanning function keys is required as you are setting up to begin a data collection task.

● **Checksum/No Checksum (Model 140 Only).** Some bar codes are printed with internal checksum characters to help



If you've lost or destroyed the two Option Control Cards packed with your scanner, you can use this copy. To order replacement cards, call Databar Customer Service (1-800-672-2776).

prevent substitution errors. However, the advanced Databar decoding system effectively avoids substitution errors without using checksum characters. But, if your application requires the scanner to use checksum characters, make sure your scanner is the Model 140. The Default Mode is No Checksum, so you must scan the **TOP** key and the **CHECKSUM** key after each power on.

● **Buffer/Non-Buffer Modes.** The standard Default Mode is Non-Buffer, meaning the DBR 100 must be connected to the host computer because it will automatically transmit each decoded data statement when a bar code is scanned. However, if you wish to use the DBR 100 in a light-duty portable application, you will select the Buffer Mode. This Mode allows you to scan and store about 1,500 characters of data in the unit's internal memory. Then you connect the DBR





100 to the host computer and dump the data to the applications program running on the computer.

To operate in the Buffer Mode, simply scan the **BUFFER** key after power-on or after setting operating modes, then begin scanning bar codes. When the DBR 100's memory is full, two long beeps will sound as you try to scan another bar code. If the DBR 100 is connected to the host computer, simply scan the **DUMP** key. Or, connect the scanner to the computer and then scan **DUMP**. (Whenever you scan **DUMP** you'll hear a high-pitched beep. This *does not* signal a successful Dump.) If the host computer does not receive the dumped data, try scanning the **DUMP** key again. Do not scan another bar code until the data dump occurs or you may lose all data in the DBR 100's memory. Note: Take extra care not to jar the scanner or touch the power switch with your hand or the coiled cord while using the unit in the Buffer Mode or you could lose the stored data on a power-off.

- **Quantity/Enter.** See the following section: "Keypad Emulation."

- **Delete.** The **DELETE** key has two functions: 1.) removing decoded bar code data while in the Buffer Mode; and 2.) removing incorrect quantity numbers (see Keypad Emulation section). While scanning bar codes in the Buffer Mode, you can scan the **DELETE** key to remove the data from the last bar code scanned. If you're scanning quantities after each bar code (see next section), scanning the **DELETE** key after entering a quantity deletes both the quantity and the data from the last bar code scanned.

- **Baud Rate.** To choose a transmission speed to the host computer or interface other than the standard 1200 Baud Default Mode, simply scan the **TOP** or **BOTTOM** key and the desired Baud Rate. If you are uncertain of the Baud Rate your host computer or interface requires, check the product's manual or ask the supplier of your system.

- **Delay.** The standard Default Mode is No Delay. However, if you experience problems with your host computer not receiving all of the characters from decoded bar codes, set the Delay Mode. The problem usually occurs when you are in the Buffer Mode and are transmitting blocks of data at high baud rate. The Delay Mode adds a 30 millisecond delay after each character.

- **Parity.** Since most computers do not use parity for checking the data received from a bar code scanner, the standard Default Mode is No Parity. However, some computers may specify Odd or Even parity checking. Again, check your computer's manual or ask the supplier of your system.

- **Data Bits.** The standard Default Mode is 8 Data Bits, the most common form of serial data transmission to host computers. However, since the data in a bar code label uses only the 7 data bits needed for ASCII characters (the 8th is for other data such as graphics), your computer may require the 7 Data Bits Mode. Again, check your system's manual or ask your supplier.

- **Termination Character.** Most computers require a termination character signal to be transmitted after a bar code is scanned to signal the end of the data string. In the standard Default Mode, a Carriage Return (CR) signal is automatically added at the end of the decoded data in a scanned bar code. Some computers may require the Termination Character to be a Carriage Return signal followed by a Line Feed (CR/LF) signal or an ETX signal (TERM ETX), or may not require a Termination Character (NO TERM). Once more, check your system's manuals or ask the supplier of your system.

## Keypad Emulation with the Option Control Card . . .

Before or after successfully scanning a bar code, you can scan one or more numbers off the Option Control Card to indicate quantity or other information. The order in which you scan numbers and bar codes is dependent on your applications software. But scanning in a number with the Option Control Card does not tie that number to decoded bar code data in any way. The numbers simply are stored or transmitted in sequence with other data.

### To enter a number . . .

1. Scan the **QUANTITY** key.
2. Scan the digit or successive digits of your number. Example: 1 - 2 - 3 for 123.
3. Scan **ENTER**.
4. Enter another number or return to scanning bar codes.

### To correct scanning mistakes . . .

- **Scanning the QUANTITY key by mistake.** Immediately scan the **ENTER** key to return to the bar code decoding mode.

- **Scanning incorrect or extra digit/digits after scanning QUANTITY.** If you have not scanned **ENTER**, scan the **DELETE** key once for each digit you want to delete; then scan the correct digit/digits and **ENTER** when the number is correct. Note: scanning **DELETE** when there are no digits remaining does not delete the **QUANTITY** input.

If you have scanned **ENTER** after an incorrect number, scan **DELETE**. But remember, this deletes both the number and the data from the last bar code scanned.

- **Scanning a bar code too soon.** If you try to scan a bar code, other than those on the Option Control Card, after scanning **QUANTITY** and before scanning **ENTER**, the DBR 100 will generate an error tone and will not decode the bar code.

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## DATABAR DBR 100 MODELS

**DBR 130 Non-UPC/EAN MODEL**

**DBR 140 Includes UPC/EAN and Checksum Mode**

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### SYSTEM

**Operating Modes:** 1.) Non-Buffered Mode (Immediate transmission of scanned bar codes.); 2.) Buffered Mode.

**Error/Status:** Tones indicate: Self-Diagnostic Check; Successful Scan; Unsuccessful Scan; and Buffer Full.

**Memory Storage:** 2KB of Static RAM

**Maximum Line Length:** 32 Characters

**Standard Default Modes (See Options for Special Default Modes):** Non-Buffer; 1200 Baud; No Delay; No Parity; Term. Character=Carriage Return; 8 Data Bits.

**Programmable Modes:** Scan the included Option Control Card to set baud rate; add delay; select parity; select number of data bits; choose termination character; input quantities and other numeric data; perform checksum verification (Model 140 only).

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### OPTICAL SCANNING CHARACTERISTICS

**Readable Bar Codes:** Auto-discrimination of Code 39; Code 11; Codabar; 2 of 5; Interleaved 2 of 5; AMES (Both Models). UPC A; UPC E; UPC Supplemental 2 and 5 Characters; EAN 8; EAN 13 (Model 140 Only).

**Ambient Light:** Complete dark to direct sunlight.

**Reading Velocity Range:** 3-30 inches per second.

**Minimum Bar Width:** .0075 inch.

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### INFRARED BOX WAND

**Wand/Cable Weight:** 3 ounces

**Wand Dimensions:** 1¼"W x 2½"H x 2½"L

**Cable:** 8" coiled cord; extends to 36". Permanently attached to wand. Modular Phone Jack Connector attaches to Control Unit.

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### COMMUNICATIONS

**Data Transfer Rates:** 300-9600 baud.

**Parity:** Odd; Even; None

**Interface:** Pseudo RS232 (± 2V output)

**Format:** 7 or 8 bit ASCII with 4 termination character options: Carriage Return; CR/Line Feed; ETX; No Termination Character.

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### OTHER

**Power:** 4 "D" cell alkaline batteries.

**Dimensions:** 37/8"W x 3"H x 9"L

**Weight:** 18 ounces (without batteries)

**Accessories (Included):** RS232 Cable. Option Control Card. User's Manual.

**Construction:** High-impact ABS plastic. Silver paint.

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### OPTIONS

Special Default Modes (available on orders of 10 or more units.)

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## Use and Care Reminders . . .

- Treat the scanner as a sensitive electronic instrument. Do not drop or jar it, expose it to moisture, or attempt to repair it. Call Databar Customer Service for repair information (1-800-672-2776).
- Always return the wand to its cradle after use to preserve batteries. Do not use rechargeable batteries.
- Do not attempt to use the Option Control Card without reading Pages 4 and 5.

- Scan bar codes in either direction with a smooth, light motion. Most new users scan too slowly; try different speeds.
- Don't put downward pressure on the wand, lift the wand-tip off the surface, or slide the tip off the top or bottom of the bar code during a scan.
- In case of difficulty, refer to Pages 2 and 3.

# DATABAR

**Innovators in Bar Code Technology**

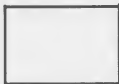
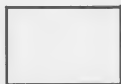
6825 Shady Oak Road • Eden Prairie, MN 55344 • 1-800-672-2776 or 612-944-5700

**FEDERAL COMMUNICATIONS COMMISSION RULES . . .** This equipment generates and uses radio frequency energy. If it is not properly installed and used in strict accordance with the manufacturer's instructions, this equipment may interfere with radio and television reception. This machine has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications Subpart J of Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. If you suspect interference, you can test this equipment by turning it off and on. If you determine that there is interference with radio or television reception, try one or more of the following measures to correct it: 1.) reorient the receiving antenna 2.) move the computer and scanner away from the receiver that is picking up interference 3.) change the relative positions of the computer equipment and the receiver 4.) plug the computer into a different outlet so that the computer and the receiver are on different branch circuits. If necessary, consult your Databar dealer or call Databar Customer Service for additional suggestions. You may also wish to consult the following booklet, which was prepared by the Federal Communications Commission: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the US Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

# DATABAR DBR 100

## OPTION CONTROL CARD

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Buffer



Non-Buffer



Dump



Quantity



Enter



Delete



300 Baud

600 Baud

**1**



1200 Baud

2400 Baud

**2**



4800 Baud

9600 Baud

**3**



Delay

No Delay

**4**



Odd Parity

Even Parity

**5**



7 Data Bits

8 Data Bits

**6**



No Parity

**7**



Term CR

Term CR/LF

**8**



No Term

Term ETX

**9**



Number



Number



**TOP**

**0**

**BOTTOM**

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**DATABAR CORPORATION**

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